Role of wearable activity-tracking technologies in the well-being and quality of life of people aged 55 and over

Conference or Workshop Item

eSTEeM
The OU centre for STEM pedagogy

The Open University

The 5th eSTEeM Annual Conference

Digital health wearables

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Life-changing Learning

Digital health wearables

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Activity trackers or fitness trackers

Picture courtesy: https://flic.kr/p/pifLfu

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What are wearable technologies being used for?

Consumer and Lifestyle

Many of us are wearing more devices to do everyday functions. Real-time information is communicated via watches, glasses, contact lenses, bands, and jewellery. As these devices become smaller, more accurate and comfortable the demand for additional features and longer battery life presents new challenges for designers.

Medical, Healthcare, and Fitness

A variety of companies are progressing rapidly with innovative technology that will improve the quality of life and revolutionise the health and fitness industry. Companies are faced with the challenges of complex end-user equipment designs whilst meeting the needs for higher quality and reliability that the health, fitness and medical markets demand.

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Research participants

Five sets of participants

- people who are already using these devices and of any age group
- family members and carers who are using these devices to monitor the health of their loved ones
- people aged over 55 who have never used these devices
- people aged over 55 who have been using these devices for some time
- medical professionals including GPs and healthcare workers

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Older users motivations for using wearables

- the quantified self
- active ageing
- preventive health
- multiple health conditions
- family pressure/reassurance
- insurance?

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Usability problems for older people

- initially setting up the device
- small fonts
- low colour contrast between icons and the background screen
- (perceived) inaccuracy e.g. in step counts and sleep patterns
- difficulty remembering to log information
- difficulty in remembering to use/transfer the device

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Ethical considerations

- Privacy of activity
- Security of data
- Coercion to use
- Valid ‘informed’ consent
- Legal capacity

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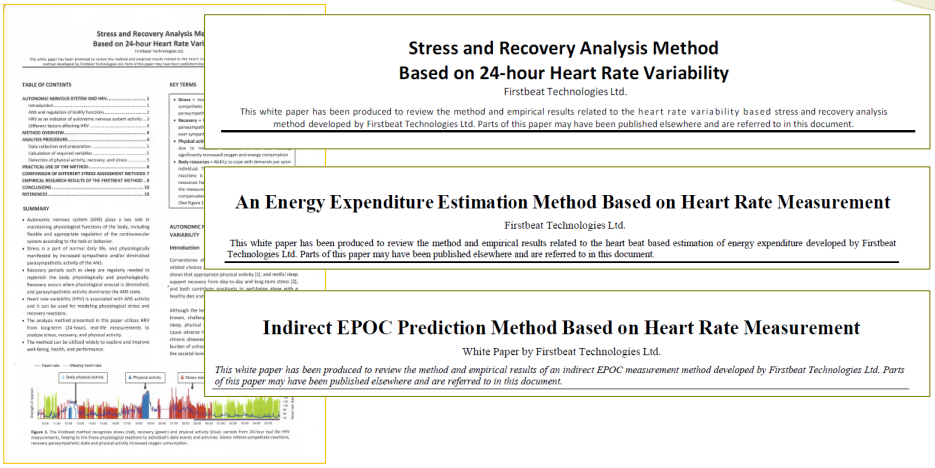
What information can we deduce from wearables?



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What do wearables measure?

- Optical heart rate sensor
- 3-axis accelerometer/gyrometer
- GPS
- Ambient light sensor
- Skin temperature sensor
- UV sensor
- Galvanic skin response
- Microphone
- Barometer

- Haptic vibration motor

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The future use …

- This emerging area is a rich source of research in a number of areas.
- It is inherently interdisciplinary in nature spanning social sciences, computing, technology and health amongst others.
- The large number of staff and students means that recruiting 'volunteers' is relatively easy.
- The ubiquitous nature of the technology and its relative affordability provide us with a huge number of possibilities in monitoring experiments.
- There are possibilities to use the technology to allow our students to collect experimental data from themselves and to share this with others in a group.
- It gives us the possibility of writing national guidelines for the use of data obtained from wearable technology (NICE, BPS etc.).

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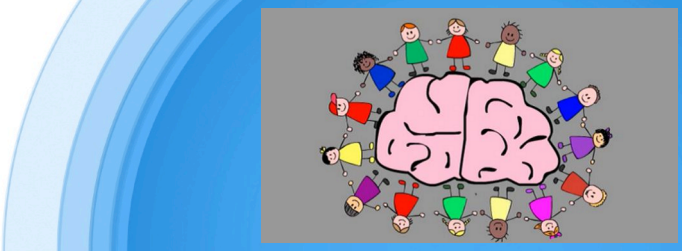

Discussion and questions